START

0020661
9106032

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

91-WOB-322

OCT 09 1991

Bliss, Level 1
WH Hamilton,
Assignee
xc: Borneman

Mr. Timothy L. Nord
Hanford Project Manager
State of Washington
Department of Ecology
Mail Stop PV-11
Olympia, Washington 98504

Dear Mr. Nord:

TRANSMITTAL OF ITEMS REQUESTED BY WASHINGTON STATE DEPARTMENT OF ECOLOGY (ECOLOGY) CONCERNING THE LIQUID EFFLUENT RETENTION FACILITY (LERF)

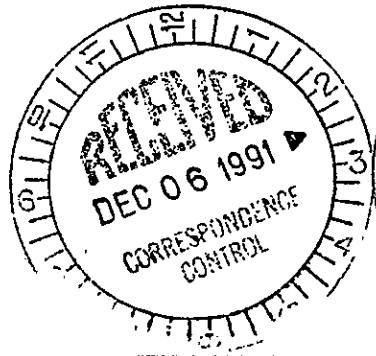
Provided for your information, is a copy of the nonconformance report (NCR W-105-13) on the Free Swell test.

The report shows that part of the soil/bentonite planned to be used in Basin 44 did not pass the initial free swell test in the construction specification. The test requires a minimum of 16 cc expansion when two (2) grams of bentonite is added to 100 ml of distilled water in a graduated cylinder.

Additional testing has been performed on the sample of bentonite taken from the suspect material to determine why the results of the swell test were slightly lower than anticipated. The outcome shows that the initial test results were low because personnel performing the test did not introduce the bentonite into the water in the graduated cylinder over a sufficient length of time. The procedure used for the measurement of free swell has been refined to assure the bentonite is introduced over a longer period of time to replicate test procedures used in industry. Based upon the refined procedure, the free swell tests now show that suspect bentonite meets the requirement.

Attachment 2 is the testing guidelines related to hydrostatic pressure testing of the double encased fiberglass piping for LERF. This information is provided for your information and satisfies a previous commitment from a LERF Project Unit Manager's Meeting.

It was necessary to develop more detailed leak testing guidelines due to problems encountered when pressure testing the 8-inch carrier piping between Basins 42-43 and 43-44. Although the piping has been successfully repaired and tested, the project plans to issue a report describing the events and recovery actions taken. The report will not be issued until Kaiser Engineers Hanford Company has resolved a potential claim against the supplier of the piping. Our investigation has shown nothing that would prevent use of the piping for service.



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BEST AVAILABLE COPY

Ecology requested a copy of the construction schedule for LERF. Attachment 3 is an updated construction schedule previously transmitted.

Ecology requested a copy of known spare parts for LERF. Attachment 4 is the spare parts list.

Through August 1991, Ecology has received various LERF document submittals, LERF engineering change notices, and LERF vendor submittals. Attachment 5 lists the items turned over to Ecology with dates of the turnover. Additional items will be turned over to Ecology and this listing will be updated and transmitted to Ecology.

If you have any questions, please contact Ms. T. M. Hennig on (509) 376-6888.

Sincerely,

Steven H. Wisness
Hanford Project Manager

WMD:TMH

Attachments:
1. Nonconformance Report
2. Testing Guidelines
3. Construction Schedule
4. Spare Parts List
5. Turnover Items/Dates

cc w/att:
P. Stasch, Ecology
G. Anderson, Ecology
T. Michelena, Ecology
T. B. Veneziano, WHC
D. E. Kelley, WHC

ORIGIN Attachment 1 to letter # 91-WOB-322

File

NONCONFORMANCE REPORT

Page 1 of 5

Project No.	W.O. No.	Location (Bldg./Area)	Safety Class	NCR No.
W-105	ER0156	200E	3	W-105-13 (5237-2)

Job Title

242A Evaporator and Purex Interim Retention Basin

Requirement(s) (Including source document numbers, revision, paragraph, etc.)

Specification W-105-C4 section 02270 Rev. 1 paragraph 2.1.1.1

Bentonite: Sodium Montmorillonite Clay meeting the following minimum standards.

a. Free Swell: 2g. to 16cc when added to 100 ml of distilled water in graduated cylinder.

Description of Nonconformance:

The laboratory Free Swell test for Bentonite sample #1339 is less than 16cc. Sample #1339 was taken from the transportation truck when it was delivered to the site at 6:10 a.m. on 7-10-91. The supplier Black Hills Bentonite provided laboratory test results stating the Free Swell met specifications. (Reference Submittal # 16.9, 6-3-91, Railroad car No. BN453552). This material has been mixed with Soil and stockpiled at the East end of the East stock-pile. The Solid Seals Pug Mill mix tickets show that 4,535 tons of mix was made from 7-10-91 until mixing ceased on 7-12-91.

Distribution

WHC

Project Files	3
PE/L. R. Tollbom	1,3
QA/L. R. Hall	1,3

KEH

A. I. Files	1,3
Q. C. Files	1,3
Central Doc Cntl	3
Const Doc Control	1,2
Engrg Doc Control	1,2
Perform Assmnt	1,2,3
Quality Engrg	1,3
PM/S. L. Petersen	1,2,3
CE/G. C. Moist	1,2,3
CM/P. L. Rackley	1,2,3
L. A. Gaddis	1,2,3
K. L. Jones	1,2,3

DOE

A. G. Lassila	1,3

Originator	Date	Manager	Date
Jay E. Thomas/dlb (signature)	7-15-91	John H. Arslanian (signature)	7-16-91

KEH QA Officer
David McAlee (signature)

NONCONFORMANCE REPORT (continued)

Disposition	ASME Code Related	Cause Code	NCR No.
☒ Use-as-is* ☐ Reject ☐ Repair* ☐ Rework *Justification Required	☒ No ☐ Yes (ASME Code Section ____)	C2C8	W-105-13(5237-2)

Disposition instructions (generally not required for use-as-is and reject dispositions):

N/A

ECN (generally required for repair and use-as-is dispositions):

☐ Yes ☒ No If yes, ECN No. ____

If no, provide explanation: Procedure for the measurement of free swell ~~is refined~~ has been refined by Chen-Northern and now replicates supplier's test procedure. (LL WHC QA 8-4-91)

Disposition Justification (if applicable):

A refined procedure to test free swell of bentonite requires a minimum duration of 4-hours, to compare with tests done by manufacturers. As per the report by Chen Northern Inc. tests based on refined procedure yield a minimum swell of 16 cc per 2 gms. Attached is a copy of report. Tests done by manufacturer and other independent labs indicate that Sample #1339 meets the requirements and the soil-bentonite mix produced with bentonite represented by the sample is acceptable.

Approval/Concurrence:

Construction Approval			Customer Projects Approval		
CP/CM Engineer	N/A	Date	Engineer	L.L. Tillben for T.S. Vail Tolan	Date 8-2-91 8-6-91
Field Quality Engineer	N/A	Date	QA	Larry R. Hall	Date 8-5-91
Design Approval			**Other Concurrence**		
Design Engineer	T. Anderson	Date 7/30/91	DOE	Wu S Chu by L.L. Tillben	Date 8-5-91
Lead Engr./Discpl Mgr.	T. Anderson	Date 7/30/91	ALANI(ASME)	N/A	Date
Quality Engineer	[signature]	Date 8/1/91 8-2-91	KEH Code Engr.	N/A	Date
Safety Engineer	D. Lundgren	Date 7-31-91	Environmental	T. Anderson	Date 7/30/91

Closure

☒ Disposition Completed as Directed

☐ Other (Explain) ____

Originator or Representative	Date
[signature]	8-6-91
Supervisor	**Date**
R. H. Aslanian	8-6-91

9212620004

RECEIVED
JUL 31 199
PROJ. MGMT

Chen-Northern, Inc.

July 29, 1991

Kaiser Engineers Hanford Company
P.O. Box 888
Richland, Washington 99352

ATTENTION: Mr. Tom Ambalam, P.E.

SUBJECT: Free Swell Test Results, July 26-27, 1991
Bentonite Sample # 1339;
W-105 Project

Gentlemen:

At your request, we have performed additional testing of bentonite sample Number 1339. This testing was performed for three purposes:

1. To determine the effect of time of bentonite addition on free swell test results.

2. To refine the test method.

3. To determine if the sample meets the minimum specified free swell of 16 milliliters after a 16 hour period.

Initial test results indicated that the subject sample did not meet the minimum specifications for free swell. Subsequent multi-operator testing indicated that the subject material would generally meet the minimum free swell specification, but that there were variances in test results which were inexplicable; and, furthermore, there was no explicable trend to the test results.

On July 25, 1991, representatives of Kaiser Engineers Hanford Company, the LOESS Group, and Chen-Northern, Inc. met to discuss the available test data.

The test method used to determine free swell is not specific regarding the rate at which the 2 gram sample is introduced into the water. Initial testing was been performed using a 1.5 to 2 hour application time.

Based on a discussion of clay mineralogy, it was decided to perform a series of free swell tests by varying the amount of time the requisite 2 gram bentonite sample was introduced into a 100 milliliter graduated cylinder.

Four samples were tested at intervals of 1.5 hours, 3 hours, 4.5 hours, and 6 hours time for addition of 2 grams of bentonite. The

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results are tabulated below.

HOURS FOR APPLICATION	1.5	3.0	4.5	6.0
Free Swell, Milliliters	16.5	18.0	19.0	19.0
	15.5	17.5	17.0	18.0
	16.5	17.0	17.0	17.5
	16.0	17.0	18.5	17.0

The test data were plotted using the proprietary program "GRAPHER" by Golden Graphics (attached). A best-fit curve using a power function was applied. The power equation calculated by the program is:

$$Y = (X^{0.077615}) * 15.748413$$

With regard to test result significance for the W-105 project, two observations of this tests data were made:

1. Even with 1 operator performing the same task at a similar time interval, there is data scatter.

2. The general trend (and best-fit curve) of the test data indicate that, with additional time for application of bentonite to water, the amount of free swell increases. It is known that at some amount of time, the amount of free swell will become asymptotic (not increase).

Based on these results, it is our opinion that given a longer application time than was apparently initially employed in test operation, the material meets the minimum job specification of 16 milliliters free swell.

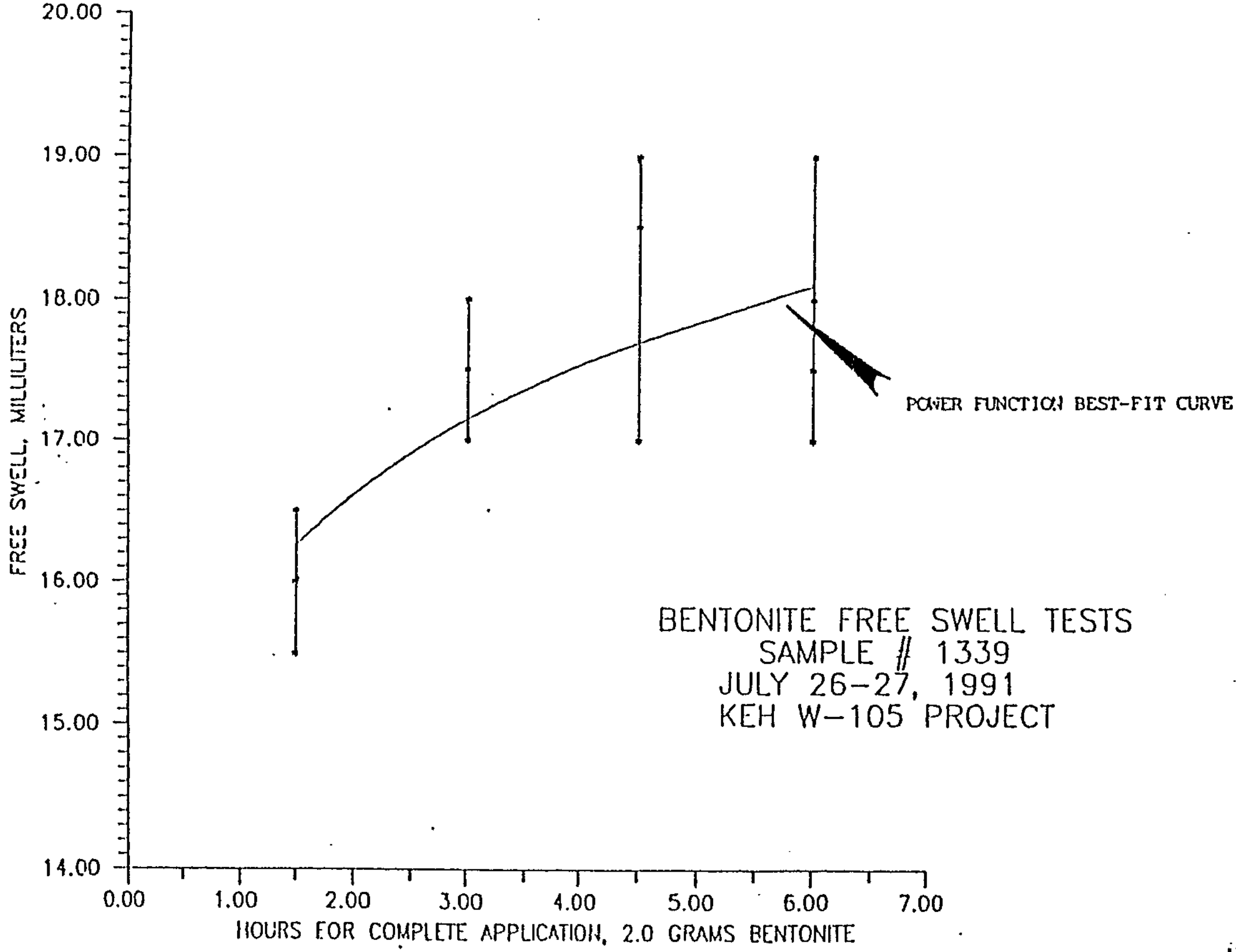
Respectfully Submitted,
CHEN-NORTHERN, INC.

Brian J. Williams, P.G.
Geotechnical Engineer

Dee F. Burrie, P.E.
Division Manager

cc: Larry Gaddis, P.E., KEH
Steve Peterson, KEH

Attachment: Bentonite Free Swell Data Plot



W-105-13 (SE37-2)
Pg. 5 of 5
Attachment 1

"PIPE IN A PIPE" GUIDELINES FOR HYDROSTATIC TESTING

The following is a step-by-step of activities to complete a double-encased pipe "hydro" test. Actual field conditions or circumstance may require deviation (see Page 3 for a detailed schematic of the testing apparatus).

Assure a starting position of all valves closed carrier and encasement.

1. Filling and Pressurization of Carrier Pipe

   A. Pressure Relief Valve (PRV) to be set 130 psig to 140 psig

   B. Open valves on the carrier pipe in the following sequence:

      1. F High Point Vent
      2. A Supply (Main)
      3. B 3/4" Supply (8" is now filling)
      4. C 1/4" PRV Side

   Note: B and C may be opened simultaneously.

   Constant monitoring of filling operation and gauges is required.

   When the carrier system is full (all air vented), close valves F and B.

   Proceed to pressurize the carrier with the in-line pressure device. Attain approx. 120 psig.

   Close valves C and A. The carrier line is now pressurized and isolated. Monitoring of gauges during Step 2 (encasement filling) will assure pressure differential.

   All valves should still be in the closed position from Step 1.

2. Filling and Pressurization of Encasement Pipe

   A. Pressure Relief Valves set to 120 psig

   B. Open valves on the encasement side in the following sequence:

      1. G High Point Vent
      2. A Main Supply
      3. D 3/4" - Encasement Supply (encasement is now filling)
      4. E 1/4" PRV Side

   Note: D and E may be opened simultaneously.

Again, monitoring of gauges during the filling operation is required to assure encasement pressure does not exceed carrier pressure when the encasement system is full (all air vented).

Close Valves D then G.

Proceed to pressurize the encasement with the in-line pressure device. Attain a minimum 90 psig.

Close Valves E and A.

The system shall be held in this condition for a minimum of 10 minutes and until all connections have been inspected.

CAUTION - DEPRESSURIZATION

NOTE: IT IS IMPERATIVE THAT ENCASEMENT PRESSURE IS RELIEVED FIRST!

When the inspections have been completed, proceed with de-pressurization in accordance with the following:

1. Encasement high point vent shall be opened first and remain open thru all draining activities.

   Valve G

   A. Verify pressure has been relieved by visual of system gauges prior to Step 2.

2. Carrier High Point Vent shall be opened and remain open during all draining activities.

   Valve F

   A. Verify pressure has been relived by visual of system gauges.

3. Proceed with normal draining activities.

Again, monitoring of gauges during the filling operation is required to assure encasement pressure does not exceed carrier pressure when the encasement system is full (all air vented).

Close Valves D then G.

Proceed to pressurize the encasement with the in-line pressure device. Attain a minimum 90 psig.

Close Valves E and A.

The system shall be held in this condition for a minimum of 10 minutes and until all connections have been inspected.

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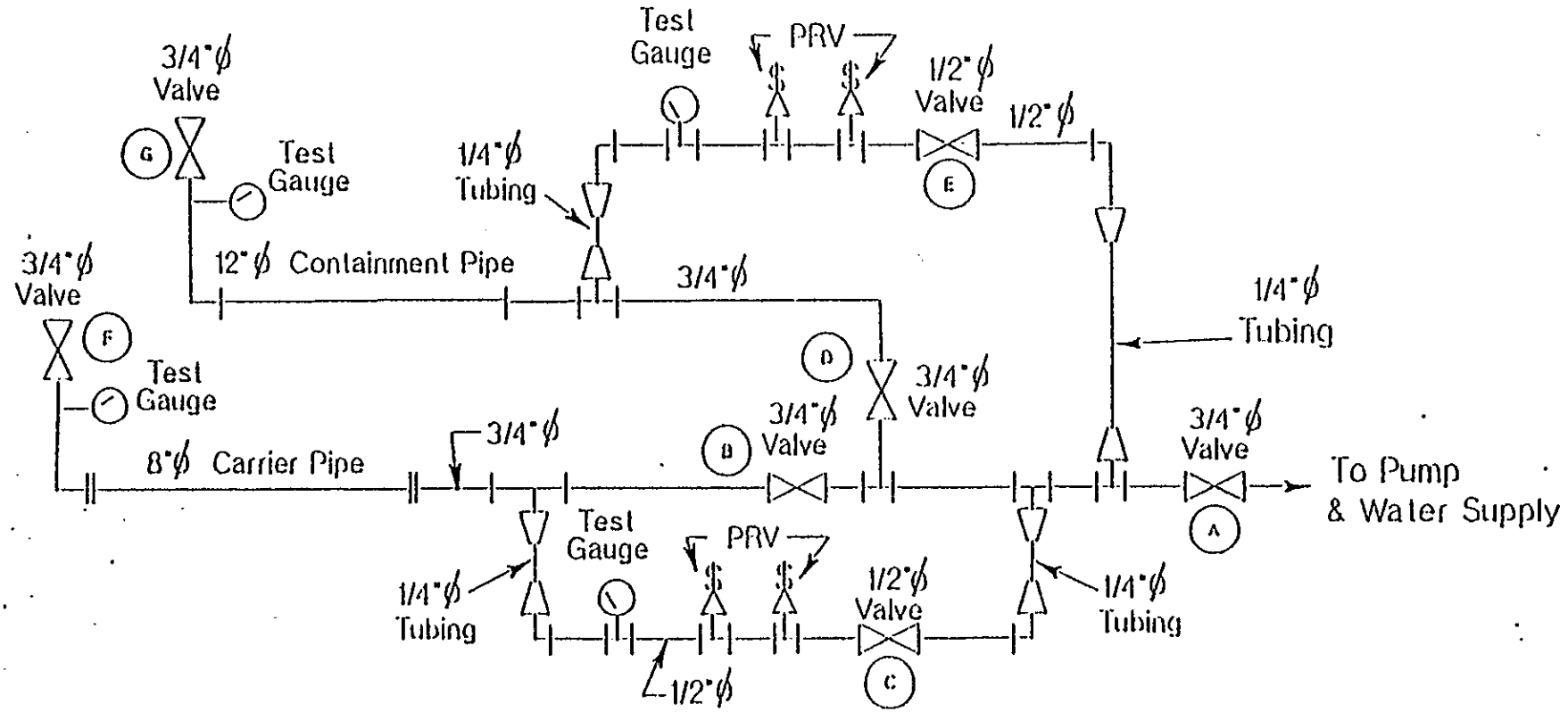
   Valve F

   A. Verify pressure has been relived by visual of system gauges.

3. Proceed with normal draining activities.



Hydrostatic Test Set-up Diagram

KAISER ENGINEERS HANFORD

Transmittal No. TR-W-105-PM-134

DOCUMENT TRANSMITTAL

Date: August 8, 1991

To: L. R. Tollbom
R3-30

From: S. L. Petersen
E6-50

Project/Work Order Number: W-105

Project/Work Order Title: 242-A Evaporator Interim Retention Basins

Subject: Hydrotesting Guidelines For Double Encased Fiberglass Pipe

No. of Copies	Company and Distribution	Mailing Address
DOE		
1	A. G. Lassila	A5-18
WHC		
1	R. J. Julian	R1-48
1	L. R. Tollbom	R3-30
KEH		
1	R. T. Franch	E6-61
1	S. L. Petersen	E6-50
1	Engineering Document Control	E6-52
0	Transmittal Clerk	E6-52

Attached Are		Purpose		Comments		Please	
[ ]	Prints	[X]	Information	[ ]	Preliminary	[ ]	Comment
[ ]	Specifications	[X]	Action	[ ]	Unchecked	[ ]	Approve
[ ]	Travelers	[ ]	Signature	[ ]	Checked	[ ]	Destroy Previous Issue
[ ]	Appr. Data	[ ]	Update	[X]	Final	[ ]	Return Previous Issue
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[X]	Procedures	[ ]		[ ]	Controlled Copies	[X]	File
[ ]	Other:			[ ]	Other:		

Document Numbers, Titles, and/or Comments

W-105 Hydrotesting Guidelines for Double Encased Fiberglass Pipe, KEH Letter Number W-105-113, Dated 8/07/91.

SLP/sjm

KAISER ENGINEERS HANFORD

W-105-113

KAISER ENGINEERS HANFORD COMPANY
POST OFFICE BOX 388
RICHLAND, WASHINGTON 99352

REG. NO. KAISEEH1348M

August 7, 1991

Mr. L. R. Tollbom, Project Engineer
Evaporator Restart Projects
Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

Dear Mr. Tollbom:

PROJECT W-105 - HYDROTESTING GUIDELINES FOR DOUBLE ENCASED FIBERGLASS PIPE

Enclosed are the guidelines for Hydro Testing of Double Encased Fiberglass Pipe that will be attached to Process Control Packages (PCPs) #4, 11, 13, and 15. The steps detailed in the attachment were closely followed in the successful retesting of the two (2) 8 N 12 Sections. I understand this letter will be transmitted to the Washington Dept. of Ecology (WDOE) and fulfills KEH's commitment to provide a detailed procedure for hydrotesting double encased pipe systems.

Please feel free to contact me at 376-7216 if you have any questions.

Thank you.

Sincerely,

S. L. Petersen, Project Manager
Evaporator Restart Projects

SLP:aks

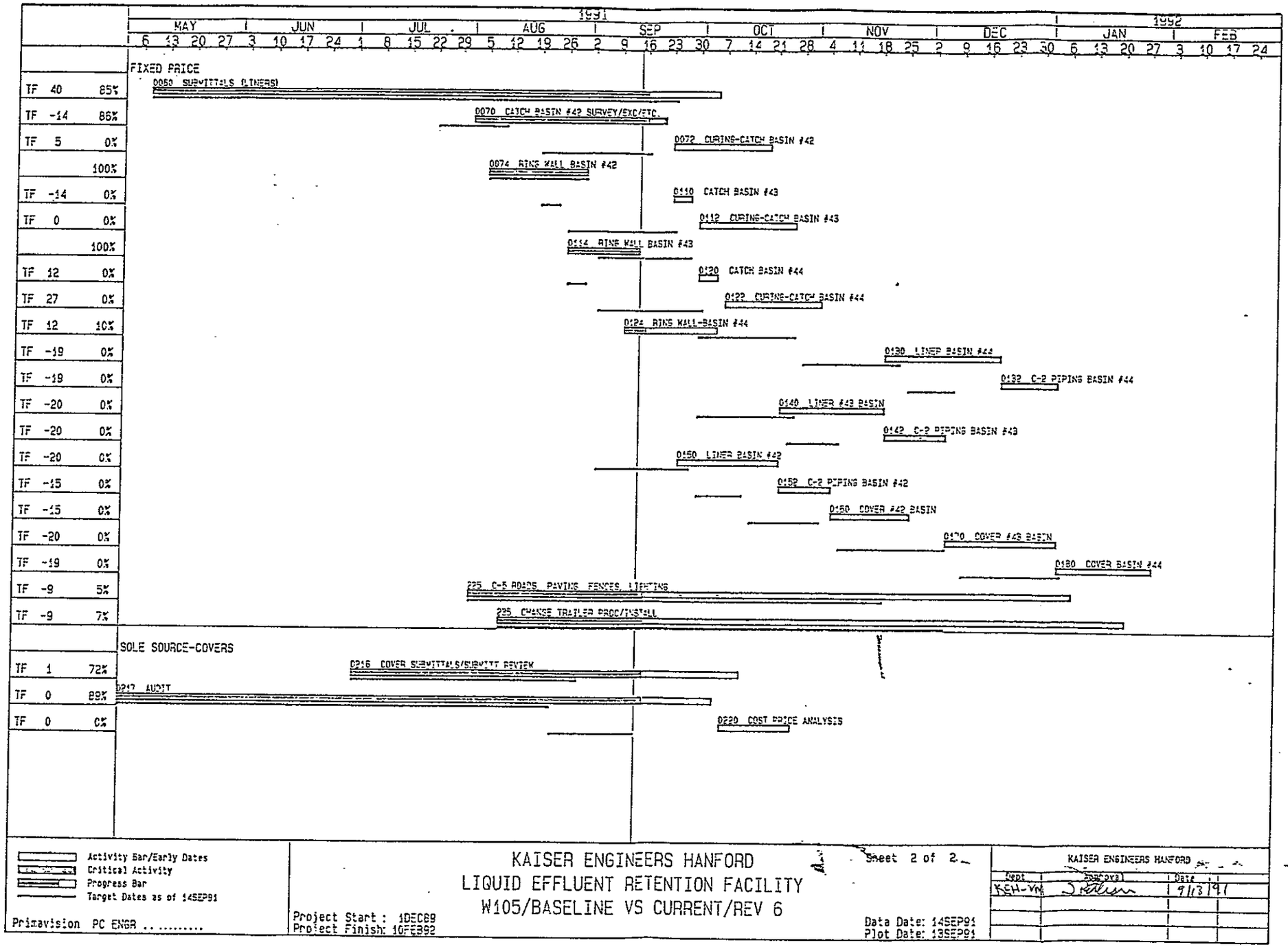
Attachment

cc: R. T. French
R. J. Julian - WHC
A. G. Lassila - DOE

9212642[illegible]014

Timeline: 1991 (MAY – DEC) – 1992 (JAN – FEB); weekly columns: MAY 6 13 20 27 | JUN 3 10 17 24 | JUL 1 8 15 22 29 | AUG 5 12 19 26 | SEP 2 9 16 23 30 | OCT 7 14 21 28 | NOV 4 11 18 25 | DEC 2 9 16 23 30 | JAN 6 13 20 27 | FEB 3 10 17 24

		MILESTONES
TF -13	0%	M35 START LINER-BASIN #42
TF -20	0%	M36 COMPLETE LINER-BASIN #42
TF -20	0%	M37 START LINER-BASIN #43
TF -20	0%	M39 COMPLETE LINER-BASIN #43
TF -19	0%	M40 START LINER-BASIN #44
TF -18	0%	M41 CONSTRUCTION COMP BASIN #42 & #43
TF -19	0%	M42 COMPLETE LINER-BASIN #44
TF -15	0%	M43 START COVER-BASIN # 42
TF -15	0%	M44 COMPLETE COVER-BASIN #42
TF -18	0%	M45 CONSTRUCTION COMP BASIN #44
TF -20	0%	M46 START COVER-BASIN #43
TF -20	0%	M47 COMPLETE COVER-BASIN #43
TF -19	0%	M48 START COVER-BASIN #44
TF -19	0%	M49 COMPLETE COVER-BASIN #44
TF -20	0%	M50 TURNOVER BASIN #42 & #43
TF -19	0%	M51 TURNOVER BASIN #44
		CONSTRUCTION FORCES
TF 14	0%	0182 ATP FOR BASIN #42
TF 9	0%	0172 ATP FOR BASIN #43
TF 22	0%	0192 ATP FOR BASIN #44
TF 0	5%	059 PIPING INSIDE EVAPORATOR
TF 58	95%	061 BACKFILL/TESTING EVAPORATOR TO FENCE
TF -20	0%	066 ASBUILT/DOC TURNOVER BASINS #42 & #43
TF -19	0%	067 FINAL AS-BUILT & DOC TURNOVER
TF 63	90%	058 BACKFILL/TESTING X-COUNTRY
TF -10	0%	080 MECH/ELECT/INSTR #42 BASIN
TF -15	0%	081 MECH/ELECT/INSTR BASIN #43
TF 12	0%	082 MECH/ELECT/INSTR BASIN #44
TF -15	0%	084 COATING CATCH BASIN #43
TF -10	0%	086 COATING-CATCH BASIN #42
TF 12	0%	087 CATCH BASIN COATING #44


1991
1992
MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB
6 13 20 27 3 10 17 24 1 8 15 22 29 5 12 19 26 2 9 16 23 30 7 14 21 28 4 11 18 25 2 9 16 23 30 6 13 20 27 3 10 17 24
FIXED PRICE
TF 40 85%
0050 SUBMITTALS (LINERS)
TF -14 86%
0070 CATCH BASIN #42 SURVEY/EXC/ETC
TF 5 0%
0072 CURING-CATCH BASIN #42
100%
0074 RING WALL BASIN #42
TF -14 0%
0110 CATCH BASIN #43
TF 0 0%
0112 CURING-CATCH BASIN #43
100%
0114 RING WALL BASIN #43
TF 12 0%
0120 CATCH BASIN #44
TF 27 0%
0122 CURING-CATCH BASIN #44
TF 12 10%
0124 RING WALL-BASIN #44
TF -19 0%
0130 LINER BASIN #44
TF -19 0%
0132 C-2 PIPING BASIN #44
TF -20 0%
0140 LINER #43 BASIN
TF -20 0%
0142 C-2 PIPING BASIN #43
TF -20 0%
0150 LINER BASIN #42
TF -15 0%
0152 C-2 PIPING BASIN #42
TF -15 0%
0160 COVER #42 BASIN
TF -20 0%
0170 COVER #43 BASIN
TF -19 0%
0180 COVER BASIN #44
TF -9 5%
225 C-5 ROADS PAVING FENCES LIGHTING
TF -9 7%
235 CHANGE TRAILER PROC/INSTALL
SOLE SOURCE-COVERS
TF 1 72%
0215 COVER SUBMITTALS/SUBMITT REVIEW
TF 0 89%
0217 AUDIT
TF 0 0%
0220 COST PRICE ANALYSIS
Activity Bar/Early Dates
Critical Activity
Progress Bar
Target Dates as of 14SEP91
Primavision PC ENGR .....
KAISER ENGINEERS HANFORD
LIQUID EFFLUENT RETENTION FACILITY
W105/BASELINE VS CURRENT/REV 6
Project Start : 1DEC89
Project Finish: 10FEB92
Data Date: 14SEP91
Plot Date: 13SEP91
Sheet 2 of 2
KAISER ENGINEERS HANFORD
Appd
KEH-VM
Concurred
Date
9/13/91

9212260015

SPARE PARTS LIST FOR LERF

As of 8/28/91 * Indicates items changed since last update.

Thermostat control for heat trace system

Tracetek sensor cable with plug-in

3 inch castiron butterfly valve

4 inch castiron butterfly valve

8 inch castiron butterfly valve

Geoguard shallow well sampler pump

Medical grade silicone 3/8 inch tubing

1.5 hp Berkley leachate submersible pump

5 hp Berkley leachate submersible pump

Ashcroft pressure switch model B400

Ashcroft pressure switch model B700

Lengths of fiberglass pipe and assorted fittings

LERF DOCUMENT SUBMITTALS TO ECOLOGY

As of 6/06/91 * Indicates items changed since last update.

Engineering Study - Submitted

Functional Design Criteria - Submitted

Conceptual Design Report - Submitted

Sitework Specification C-1 - Submitted

Basin Liners and Basin Piping Specification C-2 - Submitted

Basin Cover Specification C-8 - Submitted

Draft Groundwater Monitoring Plan - Submitted

Design Specifications and Drawings as developed - Submitted

Soil/Bentonite Mixing and Placement Specifications C4 - Submitted

Notice of Intent - Submitted

SEPA documentation - Submitted

Part A Permit Application - Submitted

Final Groundwater Monitoring Plan - To be submitted

*Engineering Change Notices - Being Submitted as prepared

Part B Permit - To be submitted

CQA Plan for construction - Submitted

*Waste Analysis Plan - Submitted

*Inspection Plan - Submitted

*Contingency/Emergency Plan - Submitted

*Training Plan - Submitted

*Preparedness/Prevention Plan - Submitted

Soil/Bentonite repair procedures - Not Required To be Submitted

Cover performance standards and air quality plans - To be Submitted

LERF ECN SUBMITTALS TO ECOLOGY

As of 6/27/91

ECN NUMBER	DATE RELEASED	DATE SUBMITTED
W-105-72	3-11-91	4-11-91
W-105-2	5-11-90	5-1-91
W-105-3	5-11-90	5-1-91
W-105-4	5-11-90	5-1-91
W-105-5	5-11-90	5-1-91
W-105-7	6-5-90	5-1-91
W-105-8	5-22-90	5-1-91
W-105-9	5-29-90	5-1-91
W-105-11	7-6-90	5-1-91
W-105-12	11-12-90	5-1-91
W-105-13	7-13-90	5-1-91
W-105-14	8-6-90	5-1-91
W-105-15	7-23-90	5-1-91
W-105-17	2-17-90	5-1-91
W-105-18	7-25-90	5-1-91
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W-105-26	8-30-90	5-1-91
W-105-27	8-30-90	5-1-91
W-105-28	10-25-90	5-1-91
W-105-32	10-3-90	5-1-91
W-105-33	9-19-90	5-1-91
W-105-35	9-19-90	5-1-91
W-105-37	9-24-90	5-1-91
W-105-38	10-11-90	5-1-91
W-105-39	9-24-90	5-1-91
W-105-40	10-4-90	5-1-91
W-105-42	11-19-90	5-1-91
W-105-44	11-12-90	5-1-91
W-105-46	1-2-91	5-1-91
W-105-47	1-4-91	5-1-91
W-105-51	12-6-90	5-1-91
W-105-52	1-21-91	5-1-91
W-105-54	1-3-91	5-1-91
W-105-55	1-21-91	5-1-91
W-105-56	1-29-91	5-1-91
W-105-57	1-4-91	5-1-91
W-105-58	1-29-91	5-1-91
W-105-60	2-21-91	5-1-91
W-105-61	2-21-91	5-1-91
W-105-62	2-5-91	5-1-91
W-105-63	1-29-91	5-1-91
W-105-64	3-5-91	5-1-91
W-105-67	2-8-91	5-1-91
W-105-68	3-4-91	5-1-91

C:\WPDATA\LERF\LETTERS\CONSOLID.ATE

W-105-69	2-8-91	5-1-91
W-105-73	3-12-91	5-1-91
W-105-74	3-4-91	5-1-91
W-105-75	3-12-91	5-1-91
W-105-76	3-27-91	5-1-91
W-105-77	4-4-91	5-1-91
W-105-78	4-3-91	5-1-91
W-105-79	4-4-91	5-1-91
W-105-80	3-27-91	5-1-91
W-105-81	4-3-91	5-1-91
W-105-82	4-3-91	5-1-91
W-105-83	4-3-91	5-1-91
W-105-84	4-3-91	5-1-91
W-105-43	3-21-91	6-3-91
W-105-65	4-17-91	6-3-91
W-105-70	5-15-91	6-3-91
W-105-85	4-17-91	6-3-91
W-105-86	5-8-91	6-3-91
W-105-88	4-12-91	6-3-91
W-105-90	5-2-91	6-3-91
W-105-91	5-15-91	6-3-91
W-105-92	5-17-91	6-3-91

LERF VENDOR SUBMITTALS TO ECOLOGY

As of 6/3/91

ITEM REQUESTED	DATE DELIVERED
Bentonite Carpet Liner	
High-density Polyethylene Liner	
Geotextile Fabric	5/17/91 FAX
Drainage Net (Synthetic Media)	
Very-low-density Polyethylene Cover	
Basin Piping	
Elastomeric Sealant	
Pipe fittings bonding	
Catalog data of piping system components	
Certified results of Mfgs pressure tests	
Coatings, List of Materials	6/3/91 Unit Manager's Meeting
Plumbing	
Leachate pumps	
Transfer pumps	
Valves	
- MOV-W60-03 Ball Valve	6/3/91 Unit Manager's Meeting
- 8 inch hand operated Butterfly Valve	6/3/91 Unit Manager's Meeting
- Butterfly Valves	6/3/91 Unit Manager's Meeting
- Hand operated Centerline Butterfly Valves	6/3/91 Unit Manager's Meeting
Accessories	
- MOV-W60-03 Actuator	6/3/91 Unit Manager's Meeting
- Pressure Gage Y-103	6/3/91 Unit Manager's Meeting
- Pressure Switch Y-104	6/3/91 Unit Manager's Meeting
- Piston Meter Y-105	6/3/91 Unit Manager's Meeting
- Strainer and Cross Reference for P.D. Meters (Y-105)	6/3/91 Unit Manager's Meeting
Operation and maintenance manuals	

Electrical

Leak sensing and locating cables		
Level detection system		
- Leak Detection System Y-10	6/3/91	Unit Manager's Meeting
Transformers		
- 60 KVA Transformer	6/3/91	Unit Manager's Meeting
Accessories		
- Breakers, Receptacle, Vapor Fixture	6/3/91	Unit Manager's Meeting
- Mini Power Center and Motor Controllers	6/3/91	Unit Manager's Meeting
- Mini Power Zone Supply	6/3/91	Unit Manager's Meeting
Cables		

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
S. H. Wisness, RL	T. L. Nord, Ecology	Incoming: 9106032

Subject: TRANSMITTAL OF ITEMS REQUESTED BY WASHINGTON STATE DEPARTMENT OF ECOLOGY (ECOLOGY) CONCERNING THE LIQUID EFFLUENT RETENTION FACILITY (LERF)

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	W/att
		Correspondence Control	A3-01	
		R. J. Bliss, Level 1	B3-04	
		L. E. Borneman	B2-35	
		L. C. Brown	H4-51	
		C. J. Geier	H4-57	
		W. H. Hamilton, Assignee	N3-10	
		H. D. Harmon	R2-52	
		K. R. Jordan	B3-51	
		M. K. Korenko	B3-08	
		R. E. Lerch	B2-35	
		P. J. Mackey	B3-15	
		H. E. McGuire	B3-63	
		L. L. Powers	B2-35	
		T. B. Veneziano	B2-35	
		R. D. Wojtasek	B2-15	
		EDMC	H4-22	

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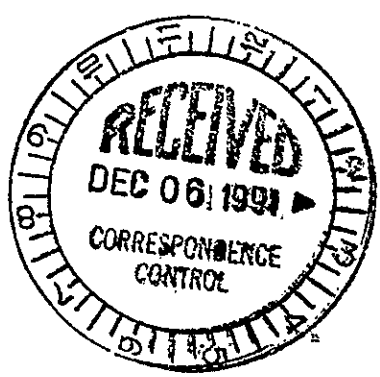

M-17-00